



Fighting Heart Disease and Stroke

Statistical Fact Sheet — Miscellaneous

Sudden Deaths From Cardiac Arrest

Cardiac arrest is the stopping of the heartbeat. The heartbeat stops when a person dies from illness or injury, or it may also stop abruptly and unexpectedly. In this latter case it's called **sudden cardiac arrest** and is often associated with coronary heart disease (CHD).

Sudden death is unexpected death resulting from various causes including cardiac arrest, pulmonary embolus (blood clot or other blockage in the lung), aortic rupture, intracranial hemorrhage (bleeding in the brain), etc. Death from sudden cardiac arrest is more properly called **sudden cardiac death**.

- Sudden cardiac death occurs on average at about 60 years of age, claims many people during their most productive years, and devastates unprepared families.
- The most common underlying cause of sudden cardiac arrest is a heart attack that results in ventricular fibrillation (VF) (quivering of the heart's lower chambers) or pulseless ventricular tachycardia (extremely rapid but ineffective beating of the heart's lower chambers). This irregular heart rhythm causes the heart to suddenly stop pumping blood. A small number of cardiac arrests are caused by extreme slowing of the heart (bradycardia).
- The victim may or may not have diagnosed heart disease. Under certain conditions, various heart medications and other drugs — as well as illegal drug abuse — can lead to abnormal heart rhythms that cause cardiac arrest and sudden death. Other causes of cardiac arrest include respiratory arrest, electrocution, drowning, choking and trauma. Cardiac arrest also can occur without any known cause.
- A victim of VF sudden cardiac arrest suddenly collapses, is unresponsive to gentle shaking, stops normal breathing and after two rescue breaths, has no signs of circulation such as normal breathing, coughing or movement. Death can occur within minutes if the victim receives no treatment.
- Brain damage can start to occur in just 4 to 6 minutes after the heart stops pumping blood. Death may be prevented if the sudden cardiac arrest victim receives immediate bystander **cardiopulmonary resuscitation** (CPR) and defibrillation within a few minutes after collapse.
- When bystanders perform effective CPR immediately after sudden cardiac arrest, they can double a victim's chance of survival.¹
- About 80 percent of all sudden cardiac arrests happen at home, and almost 60 percent are witnessed.²
- VF sudden cardiac arrest can be reversed if the victim is treated with an electric shock to the heart within a few minutes. The electric shock can stop the abnormal rhythm and allow a normal rhythm to resume. This process, called **defibrillation**, is done using a defibrillator.
- Lay rescuers can be trained to operate portable, automated external defibrillators (AEDs).

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- It's estimated that about 95 percent of sudden cardiac arrest victims die before reaching the hospital.
- Survival is directly linked to the amount of time between the onset of sudden cardiac arrest and defibrillation. If no bystander CPR is provided, a victim's chances of survival are reduced by 7 to 10 percent with every minute of delay until defibrillation.
- The VF sudden cardiac arrest survival rate is only **two to five percent** if defibrillation is provided more than 12 minutes after collapse.³
- The average time from collapse to beginning CPR to providing defibrillation varies widely across the country. Communities that train in CPR and strategically place AEDs in public buildings, arenas and emergency vehicles can significantly reduce response times. Some studies show, for example, that police equipped with AEDs can cut response time to sudden cardiac arrest victims by about three minutes, compared to historical response times.
- Early CPR and rapid defibrillation combined with early advanced care can produce high long-term survival rates for witnessed cardiac arrest. In some cities with public access defibrillation or "community AED programs," when bystanders provide **immediate** CPR and the first shock is delivered **within 3 to 5 minutes**, the reported survival rates from VF sudden cardiac arrest are as high as 48 to 74 percent.
- No statistics are available for the exact number of sudden cardiac arrests that occur each year. However, about 250,000 people a year die of coronary heart disease without being hospitalized. That's about half of all deaths from CHD — more than 680 Americans each day.
- If survival rates from sudden cardiac arrest were increased from 5 percent to 20 percent, about 40,000 **more** lives could be saved each year.
- AEDs are safe for trained lay rescuers to treat sudden cardiac arrest because the devices automatically analyze a victim's heart rhythm and only allow an electric shock to be delivered when necessary. AEDs are easy to use, compact, battery operated, lightweight and durable.
- The American Heart Association encourages the widespread use of AEDs by trained lay rescuers through community AED programs. In fiscal year 2001-02 we trained over 3 million lay rescuers worldwide in CPR (including CPR in schools) and more than 600,000 in both CPR and the use of AEDs.
- Yearly totals of sudden cardiac death in people ages 15 to 34 rose from 2,719 in 1989 to 3,000 in 1996. Alarming, though the numbers are very small, the death rate increased by 30 percent in young women. Death rates were also higher among young African Americans than among Caucasians. (Data are for unexpected deaths that occurred out-of-hospital or in an emergency room from diseases of the heart [ICD/9 codes 390-398, 402, 404-429]).⁴

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Coronary Heart Disease

- The incidence of CHD in women lags behind men by 20 years for sudden death.
- 50 percent of men and 63 percent of women who died suddenly of CHD had no previous symptoms of this disease. (FHS, NHLBI)
- People who've had a heart attack have a sudden death rate that's 4-6 times that of the general population. (FHS, NHLBI)
- Within 6 years after a recognized heart attack, 7 percent of men and 6 percent of women will experience sudden death. (FHS, NHLBI)

Cardiomyopathy

- Recent studies show that 36 percent of young athletes who die suddenly have probable or definite hypertrophic cardiomyopathy.

Congestive Heart Failure

- In people diagnosed with CHF, sudden cardiac death occurs at 6-9 times the rate of the general population. (FHS, NHLBI)

Source Footnotes

ICD – International Classification of Diseases

FHS – Framingham Heart Study

NEJM – *New England Journal of Medicine*

NHLBI – National Heart, Lung, and Blood Institute

¹ Guidelines 2000 for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care I-361.

² Eisenberg MS, Mengert TJ. Primary care: cardiac resuscitation. *NEJM* 2001;344:1304-1313, Apr 26, 2001.

³ Guidelines 2000 for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care I-23.

⁴ Zheng et al. Sudden cardiac death in U.S. young adults, 1989-96, *Circulation*. 2001;103:1345, March 6, 2001.